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Argonne launches new tool to help auto industry reduce costs

ARGONNE, Ill. (Oct. 19, 2010) – The Center for Transportation Research (CTR) at the U.S. Department of Energy's (DOE) Argonne National Laboratory unveiled today a new "plug and play" modeling tool that complements the automotive industry's interest in reducing costs by accelerating the development and introduction of advanced automotive technologies.

"To reduce cost and time to production while properly evaluating and developing advanced technologies, original equipment manufacturers (OEMs) are turning to Model Based Design," said CTR manager Aymeric Rousseau, who led the development of the tool, called Autonomie. "To facilitate this goal, a standard plug-and-play model architecture and framework for interfaces of hardware and controls models is required to integrate and manage models of varying degrees of fidelity and complexity. Autonomie gives us just that."

Autonomie allows users to integrate legacy models, controls, data and processes into a single environment that can be used throughout the different steps of the vehicle development process – from model-in-the-loop to software-in-the-loop, hardware-in-the-loop, rapid control prototyping and production. Reusing models with varying degrees of fidelity and languages will allow engineers to quickly evaluate the benefits of new technologies in a total system context.

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Argonne launches Autonomie – add one

Autonomie will also make it easier and more economical for suppliers and automakers to work together.

"Every company currently has modeling tools that use different nomenclature," Rousseau said. "So when an automaker buys a component from a supplier, the supplier must create a custom simulation model of the component to that particular client's requirements, which slows down the manufacturer's development process by several months. And, of course, the parts supplier passes the software development costs on to the vehicle manufacturer. With Autonomie, the original equipment manufacturer can easily integrate the supplier's component model into the manufacturer's library of models and processes for immediate use."

Autonomie replaces and greatly expands on the capabilities of Argonne's Powertrain System Analysis Toolkit (PSAT), which will be phased out. The more than 750 licensed PSAT users will automatically receive Autonomie. Non-PSAT users will need to acquire a license for Autonomie.

Funding for this work was provided by the Vehicle Technologies Program in DOE's Office of Energy Efficiency and Renewable Energy.

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